

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicants** : Stanley R. Krystek et al.  
**Serial No** : Not yet known  
**Filed** : May 10, 2001  
**For** : MODIFIED INOSINE 5'-MONOPHOSPHATE  
DEHYDROGENASE POLYPEPTIDES AND USES THEREOF

35 No. Arroyo Parkway  
Pasadena, California 91103  
May 10, 2001

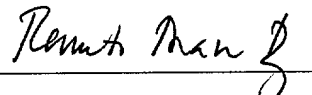
Assistant Commissioner for Patents  
Box Sequence  
Washington, D.C. 20231

SIR:

**DECLARATION PURSUANT TO 37 C.F.R. §1.821(f)**

I hereby declare that the content of the paper and computer readable copies of the Sequence Listings, submitted in the subject patent application in accordance with 37 C.F.R. §1.821(c) and (e), respectively, are the same.

Respectfully submitted,

  
\_\_\_\_\_  
Renato Marco P. Domingo

09553918 054001  
T000750 81629860

# SEQUENCE LISTING

<110> Krystek, Stanley R.  
 Sheriff, Steven  
 Witmer, Mark R.  
 Hollenbaugh, Diane L.  
 Yan, Ning  
 Mouravieff, Julie E.  
 Einspahr, Howard M.  
 Kish, Kevin

<120> MODIFIED INOSINE 5'-MONOPHOSPHATE DEHYDROGENASE  
 POLYPEPTIDES AND USES THEREOF

<130> DB24NP

<140> Not yet known

<141> 2001-05-10

<150> 60/203,448

<151> 2000-05-10

<160> 65

<170> PatentIn Ver. 2.0

<210> 1

<211> 3

<212> PRT

<213> Homo sapiens

<400> 1

Asp Lys Thr

1

<210> 2

<211> 3

<212> PRT

<213> Homo sapiens

<400> 2

Thr Pro Ile

1

<210> 3

<211> 3

<212> PRT  
<213> Homo sapiens

<400> 3  
Ser Pro Ser  
1

<210> 4  
<211> 3  
<212> PRT  
<213> Homo sapiens

<400> 4  
Ser Ala His  
1

<210> 5  
<211> 3  
<212> PRT  
<213> Homo sapiens

<400> 5  
Lys Pro Ile  
1

<210> 6  
<211> 3  
<212> PRT  
<213> Homo sapiens

<400> 6  
Ile Val Asp  
1

<210> 7  
<211> 3  
<212> PRT  
<213> Homo sapiens

<400> 7  
Ala Leu Phe  
1

<210> 8  
<211> 3  
<212> PRT  
<213> Homo sapiens

<400> 8  
Ser Pro Thr  
1

<210> 9  
<211> 3  
<212> PRT  
<213> Homo sapiens

<400> 9  
Gly Gly Tyr  
1

<210> 10  
<211> 3  
<212> PRT  
<213> Homo sapiens

<400> 10  
Gly Ser Gly  
1

<210> 11  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 11  
Gly Ser Ser Trp  
1

<210> 12  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 12  
Gln Pro Gln Ser  
1

<210> 13  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 13  
Asn Ile Ile Pro  
1

<210> 14  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 14  
Ser Pro Thr Gln  
1

<210> 15  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 15  
Thr Arg Tyr Thr  
1

<210> 16  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 16  
Ala Gly Arg Pro  
1

<210> 17  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 17

Asn Gly Gln Tyr

1

<210> 18

<211> 4

<212> PRT

<213> Homo sapiens

<400> 18

Asn Ser Pro Leu

1

<210> 19

<211> 4

<212> PRT

<213> Homo sapiens

<400> 19

Tyr Gly Thr Trp

1

<210> 20

<211> 384

<212> PRT

<213> Homo sapiens

<400> 20

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp

1

5

10

15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr

20

25

30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln

35

40

45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro

50

55

60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile

65

70

75

80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr

85

90

95

1. General Information	
1.1. Name of the Project	1.2. Date of the Report
1.3. Author(s)	1.4. Reviewer(s)
1.5. Title of the Project	1.6. Objectives of the Project
1.7. Description of the Project	1.8. Methodology
1.9. Results and Discussion	1.10. Conclusion
1.11. References	1.12. Appendix
1.13. Acknowledgements	1.14. Glossary
1.15. Summary	1.16. Bibliography
1.17. Appendix	1.18. Glossary
1.19. Bibliography	1.20. Glossary
1.21. Appendix	1.22. Glossary
1.23. Bibliography	1.24. Glossary
1.25. Appendix	1.26. Glossary
1.27. Bibliography	1.28. Glossary
1.29. Appendix	1.30. Glossary
1.31. Bibliography	1.32. Glossary
1.33. Appendix	1.34. Glossary
1.35. Bibliography	1.36. Glossary
1.37. Appendix	1.38. Glossary
1.39. Bibliography	1.40. Glossary
1.41. Appendix	1.42. Glossary
1.43. Bibliography	1.44. Glossary
1.45. Appendix	1.46. Glossary
1.47. Bibliography	1.48. Glossary
1.49. Appendix	1.50. Glossary
1.51. Bibliography	1.52. Glossary
1.53. Appendix	1.54. Glossary
1.55. Bibliography	1.56. Glossary
1.57. Appendix	1.58. Glossary
1.59. Bibliography	1.60. Glossary
1.61. Appendix	1.62. Glossary
1.63. Bibliography	1.64. Glossary
1.65. Appendix	1.66. Glossary
1.67. Bibliography	1.68. Glossary
1.69. Appendix	1.70. Glossary
1.71. Bibliography	1.72. Glossary
1.73. Appendix	1.74. Glossary
1.75. Bibliography	1.76. Glossary
1.77. Appendix	1.78. Glossary
1.79. Bibliography	1.80. Glossary
1.81. Appendix	1.82. Glossary
1.83. Bibliography	1.84. Glossary
1.85. Appendix	1.86. Glossary
1.87. Bibliography	1.88. Glossary
1.89. Appendix	1.90. Glossary
1.91. Bibliography	1.92. Glossary
1.93. Appendix	1.94. Glossary
1.95. Bibliography	1.96. Glossary
1.97. Appendix	1.98. Glossary
1.99. Bibliography	1.100. Glossary





Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
 180 185 190  
 Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
 195 200 205  
 Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala  
 210 215 220  
 Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
 225 230 235 240  
 Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met  
 245 250 255  
 Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe  
 260 265 270  
 Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp  
 275 280 285  
 Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
 290 295 300  
 Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
 305 310 315 320  
 Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
 325 330 335  
 Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met  
 340 345 350  
 Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala Gln  
 355 360 365  
 Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu Phe  
 370 375 380

<210> 22  
 <211> 384  
 <212> PRT  
 <213> Homo sapiens

<400> 22

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ser Pro  
100 105 110

Ser Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys Tyr  
115 120 125

Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu Asp  
130 135 140

Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr Ile  
145 150 155 160

Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val Thr  
165 170 175

Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
180 185 190

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
195 200 205

Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala  
210 215 220

Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
225 230 235 240

Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met

093334-05104

[illegible]

<211> 384

<213> Homo sapiens

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

10

Table 1. Demographic characteristics of the study population	
Age (years)	Mean (SD)
Male	55.2 (10.5)
Female	56.8 (11.2)
Marital status	
Married	78.5%
Single	21.5%
Education level	
High school or above	65.2%
Below high school	34.8%
Occupation	
Professional	12.3%
Managerial	18.7%
Technical	25.4%
Service	32.1%
Unemployed	11.5%
Health status	
Good	72.3%
Fair	27.7%
Chronic diseases	
Hypertension	45.6%
Diabetes	32.1%
Heart disease	28.9%
Stroke	15.4%
Arthritis	22.7%
Chronic kidney disease	18.3%
Chronic lung disease	12.8%
Chronic liver disease	8.5%
Chronic mental illness	5.2%
Chronic pain	14.6%
Chronic fatigue	10.1%
Chronic stress	16.7%
Chronic anxiety	9.8%
Chronic depression	7.4%
Chronic insomnia	11.3%
Chronic headache	13.5%
Chronic back pain	17.2%
Chronic joint pain	19.8%
Chronic muscle pain	15.9%
Chronic skin conditions	12.4%
Chronic eye conditions	8.7%
Chronic ear conditions	6.5%
Chronic nose conditions	4.3%
Chronic throat conditions	3.2%
Chronic mouth conditions	2.1%
Chronic genital conditions	1.5%
Chronic urinary conditions	1.2%
Chronic digestive conditions	1.8%
Chronic respiratory conditions	2.5%
Chronic circulatory conditions	3.1%
Chronic nervous conditions	4.2%
Chronic sensory conditions	5.3%
Chronic motor conditions	6.4%
Chronic immune conditions	7.5%
Chronic endocrine conditions	8.6%
Chronic reproductive conditions	9.7%
Chronic excretory conditions	10.8%
Chronic integumentary conditions	11.9%
Chronic musculoskeletal conditions	12.0%
Chronic nervous system conditions	13.1%
Chronic sensory system conditions	14.2%
Chronic motor system conditions	15.3%
Chronic immune system conditions	16.4%
Chronic endocrine system conditions	17.5%
Chronic reproductive system conditions	18.6%
Chronic excretory system conditions	19.7%
Chronic integumentary system conditions	20.8%
Chronic musculoskeletal system conditions	21.9%
Chronic nervous system conditions	22.0%
Chronic sensory system conditions	23.1%
Chronic motor system conditions	24.2%
Chronic immune system conditions	25.3%
Chronic endocrine system conditions	26.4%
Chronic reproductive system conditions	27.5%
Chronic excretory system conditions	28.6%
Chronic integumentary system conditions	29.7%
Chronic musculoskeletal system conditions	30.8%
Chronic nervous system conditions	31.9%
Chronic sensory system conditions	32.0%
Chronic motor system conditions	33.1%
Chronic immune system conditions	34.2%
Chronic endocrine system conditions	35.3%
Chronic reproductive system conditions	36.4%
Chronic excretory system conditions	37.5%
Chronic integumentary system conditions	38.6%
Chronic musculoskeletal system conditions	39.7%
Chronic nervous system conditions	40.8%
Chronic sensory system conditions	41.9%
Chronic motor system conditions	42.0%
Chronic immune system conditions	43.1%
Chronic endocrine system conditions	44.2%
Chronic reproductive system conditions	45.3%
Chronic excretory system conditions	46.4%
Chronic integumentary system conditions	47.5%
Chronic musculoskeletal system conditions	48.6%
Chronic nervous system conditions	49.7%
Chronic sensory system conditions	50.8%
Chronic motor system conditions	51.9%
Chronic immune system conditions	52.0%
Chronic endocrine system conditions	53.1%
Chronic reproductive system conditions	54.2%
Chronic excretory system conditions	55.3%
Chronic integumentary system conditions	56.4%
Chronic musculoskeletal system conditions	57.5%
Chronic nervous system conditions	58.6%
Chronic sensory system conditions	59.7%
Chronic motor system conditions	60.8%
Chronic immune system conditions	61.9%
Chronic endocrine system conditions	62.0%
Chronic reproductive system conditions	63.1%
Chronic excretory system conditions	64.2%
Chronic integumentary system conditions	65.3%
Chronic musculoskeletal system conditions	66.4%
Chronic nervous system conditions	67.5%
Chronic sensory system conditions	68.6%
Chronic motor system conditions	69.7%
Chronic immune system conditions	70.8%
Chronic endocrine system conditions	71.9%
Chronic reproductive system conditions	72.0%
Chronic excretory system conditions	73.1%
Chronic integumentary system conditions	74.2%
Chronic musculoskeletal system conditions	75.3%
Chronic nervous system conditions	76.4%
Chronic sensory system conditions	77.5%
Chronic motor system conditions	78.6%
Chronic immune system conditions	79.7%
Chronic endocrine system conditions	80.8%
Chronic reproductive system conditions	81.9%
Chronic excretory system conditions	82.0%
Chronic integumentary system conditions	83.1%
Chronic musculoskeletal system conditions	84.2%
Chronic nervous system conditions	85.3%
Chronic sensory system conditions	86.4%
Chronic motor system conditions	87.5%
Chronic immune system conditions	88.6%
Chronic endocrine system conditions	89.7%
Chronic reproductive system conditions	90.8%
Chronic excretory system conditions	91.9%
Chronic integumentary system conditions	92.0%
Chronic musculoskeletal system conditions	93.1%
Chronic nervous system conditions	94.2%
Chronic sensory system conditions	95.3%
Chronic motor system conditions	96.4%
Chronic immune system conditions	97.5%
Chronic endocrine system conditions	98.6%
Chronic reproductive system conditions	99.7%
Chronic excretory system conditions	100.8%
Chronic integumentary system conditions	101.9%
Chronic musculoskeletal	

[illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible]



[illegible]

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ile Val  
100 105 110

Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu Asp  
130 135 140

Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val Thr  
165 170 175

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
195 200 205

14





**100-8697**

Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
 290 295 300

Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
 305 310 315 320

Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
 325 330 335

Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met  
 340 345 350

Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala Gln  
 355 360 365

Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu Phe  
 370 375 380

<210> 27

<211> 384

<212> PRT

<213> Homo sapiens

<400> 27

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
 1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
 20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
 35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
 50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
 65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
 85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ser Pro  
 100 105 110

100150"8T.6E960

Thr	Leu	Leu	Cys	Gly	Ala	Ala	Ile	Gly	Thr	His	Glu	Asp	Asp	Lys	Tyr	115	120	125
Arg	Leu	Asp	Leu	Leu	Ala	Gln	Ala	Gly	Val	Asp	Val	Val	Val	Leu	Asp	130	135	140
Ser	Ser	Gln	Gly	Asn	Ser	Ile	Phe	Gln	Ile	Asn	Met	Ile	Lys	Tyr	Ile	145	150	155
Lys	Asp	Lys	Tyr	Pro	Asn	Leu	Gln	Val	Ile	Gly	Gly	Asn	Val	Val	Thr	165	170	175
Ala	Ala	Gln	Ala	Lys	Asn	Leu	Ile	Asp	Ala	Gly	Val	Asp	Ala	Leu	Arg	180	185	190
Val	Gly	Met	Gly	Ser	Gly	Ser	Ile	Cys	Ile	Thr	Gln	Glu	Val	Leu	Ala	195	200	205
Cys	Gly	Arg	Pro	Gln	Ala	Thr	Ala	Val	Tyr	Lys	Val	Ser	Glu	Tyr	Ala	210	215	220
Arg	Arg	Phe	Gly	Val	Pro	Val	Ile	Ala	Asp	Gly	Gly	Ile	Gln	Asn	Val	225	230	235
Gly	His	Ile	Ala	Lys	Ala	Leu	Ala	Leu	Gly	Ala	Ser	Thr	Val	Met	Met	245	250	255
Gly	Ser	Leu	Leu	Ala	Ala	Thr	Thr	Glu	Ala	Pro	Gly	Glu	Tyr	Phe	Phe	260	265	270
Ser	Asp	Gly	Ile	Arg	Leu	Lys	Lys	Tyr	Arg	Gly	Met	Gly	Ser	Leu	Asp	275	280	285
Ala	Met	Asp	Lys	His	Leu	Ser	Ser	Gln	Asn	Arg	Tyr	Phe	Ser	Glu	Ala	290	295	300
Asp	Lys	Ile	Lys	Val	Ala	Gln	Gly	Val	Ser	Gly	Ala	Val	Gln	Asp	Lys	305	310	315
Gly	Ser	Ile	His	Lys	Phe	Val	Pro	Tyr	Leu	Ile	Ala	Gly	Ile	Gln	His	325	330	335
Ser	Cys	Gln	Asp	Ile	Gly	Ala	Lys	Ser	Leu	Thr	Gln	Val	Arg	Ala	Met	340	345	350
Met	Tyr	Ser	Gly	Glu	Leu	Lys	Phe	Glu	Lys	Arg	Thr	Ser	Ser	Ala	Gln	355	360	365



	180		185		190
Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala					
195		200		205	
Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala					
210		215		220	
Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val					
225		230		235	240
Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met					
	245		250		255
Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe					
	260		265		270
Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp					
	275		280		285
Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala					
	290		295		300
Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys					
305		310		315	320
Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His					
	325		330		335
Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met					
	340		345		350
Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala Gln					
	355		360		365
Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu Phe					
	370		375		380

<210> 29  
 <211> 384  
 <212> PRT  
 <213> Homo sapiens

<400> 29













<210> 32  
 <211> 385  
 <212> PRT  
 <213> Homo sapiens

<400> 32

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
 1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
 20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
 35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
 50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
 65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
 85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Gln Pro  
 100 105 110

Gln Ser Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys  
 115 120 125

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
 130 135 140

Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr  
 145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
 165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
 180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
 195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
 210 215 220

TCF30"BFEEBEO





Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala  
340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
355 360 365

Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
370 375 380

Phe  
385

<210> 34

<211> 385

<212> PRT

<213> Homo sapiens

<400> 34

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ser Pro  
100 105 110

Thr Gln Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys

TE00T00"ET00T00



380

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
180 185 190



Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
210 215 220

Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
225 230 235 240

Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met  
245 250 255

Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe  
260 265 270

Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu  
275 280 285

Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu  
290 295 300

Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala  
340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
355 360 365

Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
370 375 380

Phe  
385

<210> 36

<211> 385

<212> PRT

<213> Homo sapiens

<400> 36

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15





95

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala

TOPF50-36550

340	345	350
Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala		
355	360	365
Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu		
370	375	380
Phe		
385		
<210> 38		
<211> 385		
<212> PRT		
<213> Homo sapiens		
<400> 38		
Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp		
1	5	10 15
Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr		
20	25	30
Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln		
35	40	45
Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro		
50	55	60
Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile		
65	70	75 80
Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr		
85	90	95
Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Asn Ser		
100	105	110
Pro Leu Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys		
115	120	125
Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu		
130	135	140
Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr		
145	150	155 160

Ile	Lys	Asp	Lys	Tyr	Pro	Asn	Leu	Gln	Val	Ile	Gly	Gly	Asn	Val	Val	165	170	175
Thr	Ala	Ala	Gln	Ala	Lys	Asn	Leu	Ile	Asp	Ala	Gly	Val	Asp	Ala	Leu	180	185	190
Arg	Val	Gly	Met	Gly	Ser	Gly	Ser	Ile	Cys	Ile	Thr	Gln	Glu	Val	Leu	195	200	205
Ala	Cys	Gly	Arg	Pro	Gln	Ala	Thr	Ala	Val	Tyr	Lys	Val	Ser	Glu	Tyr	210	215	220
Ala	Arg	Arg	Phe	Gly	Val	Pro	Val	Ile	Ala	Asp	Gly	Gly	Ile	Gln	Asn	225	230	235
Val	Gly	His	Ile	Ala	Lys	Ala	Leu	Ala	Leu	Gly	Ala	Ser	Thr	Val	Met	245	250	255
Met	Gly	Ser	Leu	Leu	Ala	Ala	Thr	Thr	Glu	Ala	Pro	Gly	Glu	Tyr	Phe	260	265	270
Phe	Ser	Asp	Gly	Ile	Arg	Leu	Lys	Lys	Tyr	Arg	Gly	Met	Gly	Ser	Leu	275	280	285
Asp	Ala	Met	Asp	Lys	His	Leu	Ser	Ser	Gln	Asn	Arg	Tyr	Phe	Ser	Glu	290	295	300
Ala	Asp	Lys	Ile	Lys	Val	Ala	Gln	Gly	Val	Ser	Gly	Ala	Val	Gln	Asp	305	310	315
Lys	Gly	Ser	Ile	His	Lys	Phe	Val	Pro	Tyr	Leu	Ile	Ala	Gly	Ile	Gln	325	330	335
His	Ser	Cys	Gln	Asp	Ile	Gly	Ala	Lys	Ser	Leu	Thr	Gln	Val	Arg	Ala	340	345	350
Met	Met	Tyr	Ser	Gly	Glu	Leu	Lys	Phe	Glu	Lys	Arg	Thr	Ser	Ser	Ala	355	360	365
Gln	Val	Glu	Gly	Gly	Val	His	Ser	Leu	His	Ser	Tyr	Glu	Lys	Arg	Leu	370	375	380
Phe																385		

<210> 39

<211> 385

<212> PRT

<213> Homo sapiens

<400> 39

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Tyr Gly  
100 105 110

Thr Trp Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys  
115 120 125

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
130 135 140

Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr  
145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
210 215 220

Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
225 230 235 240





Variable	Mean		SD		t		p	
	Control	Case	Control	Case	Control	Case	Control	Case
Age	21.5	21.5	1.5	1.5	0.0	0.0	0.999	0.999
Gender	100	100	0	0	0.0	0.0	0.999	0.999
Height	170.0	170.0	5.0	5.0	0.0	0.0	0.999	0.999
Weight	65.0	65.0	10.0	10.0	0.0	0.0	0.999	0.999
Body mass index	22.0	22.0	2.0	2.0	0.0	0.0	0.999	0.999
Heart rate	70.0	70.0	10.0	10.0	0.0	0.0	0.999	0.999
Stroke volume	70.0	70.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output	5.0	5.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0	0.999	0.999
Stroke volume index	100.0	100.0	10.0	10.0	0.0	0.0	0.999	0.999
Cardiac output index	7.0	7.0	1.0	1.0	0.0	0.0</		

<400> 41

<400> 42

40

```

gcaatggcgc ttacaggcgg tattggcttc atccaccaca actgtacacc tgaattccag 300
gccaatgaag ttcggaaggt gaagaaatat ggttcgggcc tgctgtgtgg ggcagccatt 360
ggcactcatg aggatgacaa gtataggctg gacttgctcg cccaggctgg tgtggatgta 420
gtgggttttg actcttccca gggaaattcc atcttccaga tcaatatgat caagtacatc 480
aaagacaaat accctaattc ccaagtcatt ggaggcaatg tggtcactgc tgcccaggcc 540
aagaacctca ttgatgcagg tgtggatgcc ctgcgggtgg gcatgggaag tggctccatc 600
tgcattacgc aggaagtgtt ggcctgtggg cggccccaag caacagcagt gtacaagggtg 660
tcagagtatg cacggcgctt tgggtgttcc gtcattgctg atggaggaat ccaaaatgtg 720
ggtcataatt cgaaagcctt ggcccttggg gcctccacag tcatgatggg ctctctcctg 780
gctgccacca ctgaggcccc tgggtgaatac ttcttttccg atgggatccg gctaaagaaa 840
tategcggtg tgggttctct cgatgccatg gacaagcacc tcagcagcca gaacagatat 900
ttcagtgaag ctgacaaaat caaagtggcc caggagtggt ctggtgctgt gcaggacaaa 960
gggtcaatcc acaaatttgt cccttacctg attgctggca tccaacactc atgccaggac 1020
attggtgccg agagcttgac ccaagtccga gccatgatgt actctgggga gcttaagttt 1080
gagaagagaa cgtcctcagc ccagggtgga ggtggcgtcc atagcctcca ttcgtatgag 1140
aagcggcttt tctga 1155

```

<210> 43

<211> 1155

<212> DNA

<213> Homo sapiens

<400> 43

```

atggccgact acctgattag tgggggacgc tcctacgtgc cagacgacgg actcacagca 60
cagcagctct tcaactgcgg agacggcctc acctacaatg actttctcat tctcctggg 120
tacatcgact tcaactgcga ccagggtggc ctgacttctg ctctgaccaa gaaaatcact 180
cttaagaccc cactggtttc ctctcccatg gacacagtca cagaggctgg gatggccata 240
gcaatggcgc ttacaggcgg tattggcttc atccaccaca actgtacacc tgaattccag 300
gccaatgaag ttcggaaggt gaagaaatat tctccgactc tgctgtgtgg ggcagccatt 360
ggcactcatg aggatgacaa gtataggctg gacttgctcg cccaggctgg tgtggatgta 420
gtgggttttg actcttccca gggaaattcc atcttccaga tcaatatgat caagtacatc 480
aaagacaaat accctaattc ccaagtcatt ggaggcaatg tggtcactgc tgcccaggcc 540
aagaacctca ttgatgcagg tgtggatgcc ctgcgggtgg gcatgggaag tggctccatc 600
tgcattacgc aggaagtgtt ggcctgtggg cggccccaag caacagcagt gtacaagggtg 660
tcagagtatg cacggcgctt tgggtgttcc gtcattgctg atggaggaat ccaaaatgtg 720
ggtcataatt cgaaagcctt ggcccttggg gcctccacag tcatgatggg ctctctcctg 780
gctgccacca ctgaggcccc tgggtgaatac ttcttttccg atgggatccg gctaaagaaa 840
tategcggtg tgggttctct cgatgccatg gacaagcacc tcagcagcca gaacagatat 900
ttcagtgaag ctgacaaaat caaagtggcc caggagtggt ctggtgctgt gcaggacaaa 960
gggtcaatcc acaaatttgt cccttacctg attgctggca tccaacactc atgccaggac 1020
attggtgccg agagcttgac ccaagtccga gccatgatgt actctgggga gcttaagttt 1080
gagaagagaa cgtcctcagc ccagggtgga ggtggcgtcc atagcctcca ttcgtatgag 1140
aagcggcttt tctga 1155

```

<210> 44

<211> 1155

<212> DNA

<213> Homo sapiens

<400> 44

```

atggcggact acctgatcag cggcggcacc ggctacgtgc ccgaggatgg gctcaccgcg 60
cagcagctct tcgccagcgc cgacggcctc acctacaacg acttccctgat tctcccagga 120
ttcatagact tcatagctga tgagggtggac ctgacctcag ccctgaccgg gaagatcacg 180
ctgaagacgc cactgatctc ctcccccatg gacactgtga cagagggtga catggccatt 240
gccatggctc tgatgggagg tattgggtttc attcaccaca actgcacccc agagttccag 300
gccaacgagg tgcggaaggt caagaagttt gacaaaaccc tgctctgtgg ggcagctgtg 360
ggcaccgctg aggatgacaa ataccgtctg gacctgctca ccagggcggg cgtcgacgtc 420
atagtcttgg actcgtccca agggaattcg gtgtatcaaa tcgccatggt gcattacatc 480
aaacagaagt acccccacct ccagggtgatt ggggggaacg tggtgacagc agcccaggcc 540
aagaacctga ttgatgctgg tgtggacggg ctgcgctggg gcatgggctg cggctccatc 600
tgcacacccc aggaagtgat ggctgtgggt cggccccagg gcactgctgt gtacaagggtg 660
gctgagtatg cccggcgctt tgggtgtgccc atcatagccg atggcggcat ccagaccgtg 720
ggacacgtgg tcaaggccct ggcccttggg gcctccacag tgatgatggg ctccctgctg 780
gccgccacta cggaggcccc tggcgagtac ttcttctcag acggggtgcg gctcaagaag 840
taccggggca tgggctcact ggatgccatg gagaagagca gcagcagcca gaaacgatac 900
ttcagcgagg gggataaagt gaagatcgcg cagggtgtct cgggctccat ccaggacaaa 960
ggatccattc agaagttcgt gccctacctc atagcaggca tccaacacgg ctgccaggat 1020
atcggggccc gcagcctgtc tgtccttcgg tccatgatgt actcaggaga gctcaagttt 1080
gagaagcgga ccattgcggc ccagattgag ggtggtgtcc atggcctgca ctcttacgaa 1140
aagcggctgt actga 1155

```

<210> 45

<211> 1158

<212> DNA

<213> Homo sapiens

<400> 45

```

atggccgact acctgattag tgggggcacg tctacgtgc cagacgacgg actcacagca 60
cagcagctct tcaactgcgg agacggcctc acctacaatg actttctcat tctccctggg 120
tacatcgact tcaactgcga ccagggtggac ctgacttctg ctctgaccaa gaaaatcact 180
cttaagaccc cactggtttc ctctcccatg gacacagtca cagaggctgg gatggccata 240
gcaatggcgc ttacaggcgg tattggcttc atccaccaca actgtacacc tgaattccag 300
gccaatgaag ttcggaagt gaagaaatat tctccgactc agctgctgtg tggggcagcc 360
attggcactc atgaggatga caagtatagg ctggacttgc tcgccagggc tgggtgtggat 420
gtagtggttt tggactcttc ccagggaat tccatcttcc agatcaatat gatcaagtac 480
atcaaagaca aataccctaa tctccaagtc attggaggca atgtggtcac tgctgccag 540
gccagaacc tcattgatgc aggtgtggat gccctgcggg tgggcatggg aagtggctcc 600
atctgcatta cgcaggaagt gctggcctgt gggcgcccc aagcaacagc agtgtacaag 660
gtgtcagagt atgcacggcg ctttgggtgt ccggtcattg ctgatggagg aatccaaaat 720
gtgggtcata ttgcgaaagc cttggccctt ggggcctcca cagtcatgat gggctctctc 780
ctggctgcc aactgaggc ccctggtgaa tacttctttt ccgatgggat ccggctaaag 840
aaatatcgcg gtatgggttc tctcgatgcc atggacaagc acctcagcag ccagaacaga 900
tatttcagtg aagctgacaa aatcaaagtg gcccaggag tgtctggtgc tgtgcaggac 960
aaagggtcaa tccacaaatt tgtcccttac ctgattgctg gcatccaaca ctcatgccag 1020
gacattggtg ccaagagctt gacccaagtc cgagccatga tgtactctgg ggagcttaag 1080
tttgagaaga gaacgtcctc agcccagggtg gaagggtggc tccatagcct ccattcgtat 1140

```

1158

<210> 46

<211> 1158

<212> DNA

<213> Homo sapiens

<400> 46

atggcgcgact	acctgatttag	tgggggcacg	tctacgtgc	cagacgacgg	actcacagca	60
cagcagctct	tcaactgcgg	agacggcctc	acctacaatg	actttctcat	tctccttggg	120
tacatcgact	tcactgcaga	ccaggtggac	ctgacttctg	ctctgaccaa	gaaaatcact	180
cttaagaccc	cactggtttc	ctctcccatt	gacacagtca	cagaggctgg	gatggccata	240
gcaatggcgc	ttacaggcgg	tattggcttc	atccaccaca	actgtacacc	tgaattccag	300
gccaatgaag	ttcggaagt	gaagaaatat	gctggtcgtc	cgctgctgtg	tggggcagcc	360
attggcactc	atgaggatga	caagtatagg	ctggacttgc	tcgcccaggc	tgggtgtgat	420
gtagtggttt	tggactcttc	ccagggaagt	tccatcttcc	agatcaatat	gatcaagtac	480
atcaaagaca	aataccctaa	tctccaagtc	attggaggca	atgtggtcac	tgctgccag	540
gccaagaacc	tcattgatgc	aggtgtggat	gccctgcggg	tgggcatggg	aagtggctcc	600
atctgcatta	cgcagggaagt	gctggcctgt	gggcggcccc	aagcaacagc	agtgtacaag	660
gtgtcagagt	atgcacggcg	ctttgggtgt	ccggctcattg	ctgatggagg	aatccaaaat	720
gtgggtcata	ttgcgaaagc	cttggccctt	ggggcctcca	cagtcatgat	gggctctctc	780
ctggctgcc	ccactgaggc	ccctggtgaa	tacttctttt	ccgatgggat	ccggctaaaag	840
aaatatcgcg	gtatgggttc	tctcgatgcc	atggacaagc	acctcagcag	ccagaacaga	900
tatttcagtg	aagctgacaa	aatcaaagt	gccaggggag	tgtctggtgc	tgtgcaggac	960
aaagggtaa	tcacaaaatt	tgtcccttac	ctgattgctg	gcatacaaca	ctcatgccag	1020
gacattggtg	ccaagagctt	gacccaagtc	cgagccatga	tgtactctgg	ggagcttaag	1080
tttgagaaga	gaacgtcttc	agcccagggtg	gaagggtggcg	tccatagcct	ccattcgtat	1140
gagaaacggc	ttttctga					1158

<210> 47

<211> 1158

<212> DNA

<213> Homo sapiens

<400> 47

atggcgcgact	acctgatttag	tgggggcacg	tcctactgtgc	cagacgacgg	actcacagca	60
cagcagctct	tcaactgcgg	agacggcctc	acctacaatg	actttctcat	tctccctggg	120
tacatcgact	tcactgcaga	ccagggtggac	ctgacttctg	ctctgaccaa	gaaaatcact	180
cttaagaccc	cactggtttc	ctctcccatg	gacacagtca	cagaggctgg	gatggccata	240
gcaatggcgc	ttacaggcgg	tattggcttc	atccaccaca	actgtacacc	tgaattccag	300
gccaatgaag	ttcggaagt	gaagaaatat	aactctccgc	ttctgctgtg	tggggcagcc	360
attggcactc	atgaggatga	caagtatagg	ctggacttgc	tcgcccaggc	tgggtgtggat	420
gtagtggttt	tggactcttc	ccagggaaat	tccatcttcc	agatcaatat	gatcaagtac	480
atcaaagaca	aataccctaa	tctccaagtc	attggaggca	atgtggtcac	tgctgccag	540
gccaagaacc	tcattgatgc	aggtgtggat	gccctgcggg	tgggcatggg	aagtggctcc	600
atctgcatta	cgcaggaagt	gctggcctgt	gggcggcccc	aagcaacagc	agtgtacaag	660
gtgtcagagt	atgcacggcg	ctttggtgtt	ccggtcattg	ctgatggagg	aatccaaaat	720
gtgggtcata	ttgcgaaagc	cttggccctt	qgggcctcca	caqtcatgat	gggctctctc	780

ctggctgcca ccactgaggc ccctggtgaa tactttcttt ccgatgggat ccggctaaag 840  
 aaatatcgcg gtatgggttc tctcgatgcc atggacaagc acctcagcag ccagaacaga 900  
 tatttcagtg aagctgacaa aatcaaagtg gcccagggag tgtctggtgc tgtgcaggac 960  
 aaaggggtcaa tccacaaatt tgtcccttac ctgattgctg gcatccaaca ctcatgccag 1020  
 gacattggtg ccaagagctt gacccaagtc cgagccatga tgtactctgg ggagcttaag 1080  
 tttgagaaga gaacgtcctc agcccaggtg gaaggtggcg tccatagcct ccattcgtat 1140  
 gagaagcggc ttttctga 1158

<210> 48

<211> 514

<212> PRT

<213> Homo sapiens

<400> 48

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Gly Tyr Val Pro Glu Asp  
 1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Ala Ser Ala Asp Asp Leu Thr Tyr  
 20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Phe Ile Asp Phe Ile Ala Asp Glu  
 35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Arg Lys Ile Thr Leu Lys Thr Pro  
 50 55 60

Leu Ile Ser Ser Pro Met Asp Thr Val Thr Glu Ala Asp Met Ala Ile  
 65 70 75 80

Ala Met Ala Leu Met Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
 85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Asn Phe Glu Gln  
 100 105 110

Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Ser His Thr Val Gly  
 115 120 125

Asp Val Leu Glu Ala Lys Met Arg His Gly Phe Ser Gly Ile Pro Ile  
 130 135 140

Thr Glu Thr Gly Thr Met Gly Ser Lys Leu Val Gly Ile Val Thr Ser  
 145 150 155 160

Arg Asp Ile Asp Phe Leu Ala Glu Lys Asp His Thr Thr Leu Leu Ser  
 165 170 175

Glu Val Met Thr Pro Arg Ile Glu Leu Val Val Ala Pro Ala Gly Val

09659465404

180	185	190
Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Ser Lys Lys Gly Lys		
195	200	205
Leu Pro Ile Val Asn Asp Cys Asp Glu Leu Val Ala Ile Ile Ala Arg		
210	215	220
Thr Asp Leu Lys Lys Asn Arg Asp Tyr Pro Leu Ala Ser Lys Asp Ser		
225	230	235 240
Gln Lys Gln Leu Leu Cys Gly Ala Ala Val Gly Thr Arg Glu Asp Asp		
245	250	255
Lys Tyr Arg Leu Asp Leu Leu Thr Gln Ala Gly Val Asp Val Ile Val		
260	265	270
Leu Asp Ser Ser Gln Gly Asn Ser Val Tyr Gln Ile Ala Met Val His		
275	280	285
Tyr Ile Lys Gln Lys Tyr Pro His Leu Gln Val Ile Gly Gly Asn Val		
290	295	300
Val Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Gly		
305	310	315 320
Leu Arg Val Gly Met Gly Cys Gly Ser Ile Cys Ile Thr Gln Glu Val		
325	330	335
Met Ala Cys Gly Arg Pro Gln Gly Thr Ala Val Tyr Lys Val Ala Glu		
340	345	350
Tyr Ala Arg Arg Phe Gly Val Pro Ile Ile Ala Asp Gly Gly Ile Gln		
355	360	365
Thr Val Gly His Val Val Lys Ala Leu Ala Leu Gly Ala Ser Thr Val		
370	375	380
Met Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr		
385	390	395 400
Phe Phe Ser Asp Gly Val Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser		
405	410	415
Leu Asp Ala Met Glu Lys Ser Ser Ser Ser Gln Lys Arg Tyr Phe Ser		
420	425	430
Glu Gly Asp Lys Val Lys Ile Ala Gln Gly Val Ser Gly Ser Ile Gln		

Table 1. Demographic characteristics of the study population	
Age (years)	Mean (SD)
Male	55.2 (10.5)
Female	56.8 (11.2)
Marital status	
Married	78.5%
Single	12.3%
Divorced	5.2%
Widowed	4.0%
Education level	
High school or less	65.8%
College	25.5%
Postgraduate	8.7%
Occupation	
Professional	32.1%
Managerial	18.9%
Technical	15.4%
Service	22.3%
Unemployed	11.3%
Income (TL/month)	
< 1000	15.2%
1000-2000	35.8%
2000-3000	28.5%
> 3000	20.5%
Health status	
Good	72.3%
Fair	18.5%
Poor	9.2%
Smoking status	
Smoker	45.8%
Non-smoker	54.2%
Alcohol consumption	
Regular	12.5%
Occasional	25.3%
Never	62.2%

Table 1. Demographic characteristics of the study population	
Age (years)	Mean (SD)
Male	55.2 (10.5)
Female	56.8 (11.2)
Marital status	
Married	78.5%
Single	12.3%
Divorced	5.2%
Widowed	4.0%
Education level	
High school or less	65.8%
College	25.5%
Postgraduate	8.7%
Occupation	
Professional	32.1%
Managerial	18.9%
Technical	15.4%
Service	22.3%
Unemployed	11.3%
Income (TL/month)	
< 1000	15.2%
1000-2000	35.8%
2000-3000	28.5%
> 3000	20.5%
Health status	
Good	72.3%
Fair	18.5%
Poor	9.2%
Smoking status	
Smoker	45.8%
Non-smoker	54.2%
Alcohol consumption	
Regular	12.5%
Occasional	25.3%
Never	62.2%

Asp Val Phe Glu Ala Lys Ala Arg His Gly Phe Cys Gly Ile Pro Ile  
 130 135 140  
 Thr Asp Thr Gly Arg Met Gly Ser Arg Leu Val Gly Ile Ile Ser Ser  
 145 150 155 160  
 Arg Asp Ile Asp Phe Leu Lys Glu Glu Glu His Asp Cys Phe Leu Glu  
 165 170 175  
 Glu Ile Met Thr Lys Arg Glu Asp Leu Val Val Ala Pro Ala Gly Ile  
 180 185 190  
 Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Ser Lys Lys Gly Lys  
 195 200 205  
 Leu Pro Ile Val Asn Glu Asp Asp Glu Leu Val Ala Ile Ile Ala Arg  
 210 215 220  
 Thr Asp Leu Lys Lys Asn Arg Asp Tyr Pro Leu Ala Ser Lys Asp Ala  
 225 230 235 240  
 Lys Lys Gln Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp  
 245 250 255  
 Lys Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val  
 260 265 270  
 Leu Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys  
 275 280 285  
 Tyr Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val  
 290 295 300  
 Val Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala  
 305 310 315 320  
 Leu Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val  
 325 330 335  
 Leu Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu  
 340 345 350  
 Tyr Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln  
 355 360 365  
 Asn Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val  
 370 375 380







<400> 58  
ctgagtcgga gaatatttct tcactttccg aac 33

<210> 59  
<211> 33  
<212> DNA  
<213> Homo sapiens

<400> 59  
cggacgacca gcatatttct tcactttccg aac 33

<210> 60  
<211> 33  
<212> DNA  
<213> Homo sapiens

<400> 60  
aagcggagag ttatatttct tcactttccg aac 33

<210> 61  
<211> 133  
<212> PRT  
<213> Homo sapiens

<400> 61  
Glu Gln Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Ser His Thr  
1 5 10 15

Val Gly Asp Val Leu Glu Ala Lys Met Arg His Gly Phe Ser Gly Ile  
20 25 30

Pro Ile Thr Glu Thr Gly Thr Met Gly Ser Lys Leu Val Gly Ile Val  
35 40 45

Thr Ser Arg Asp Ile Asp Phe Leu Ala Glu Lys Asp His Thr Thr Leu  
50 55 60

Leu Ser Glu Val Met Thr Pro Arg Ile Glu Leu Val Val Ala Pro Ala  
65 70 75 80

Gly Val Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Ser Lys Lys  
85 90 95

Gly Lys Leu Pro Ile Val Asn Asp Cys Asp Glu Leu Val Ala Ile Ile  
100 105 110

Ala Arg Thr Asp Leu Lys Lys Asn Arg Asp Tyr Pro Leu Ala Ser Lys

125

Asp Val Leu Glu Ala Lys Met Arg His Gly Phe Ser Gly Ile Pro Ile  
 130 135 140  
 Thr Glu Thr Gly Thr Met Gly Ser Lys Leu Val Gly Ile Val Thr Ser  
 145 150 155 160  
 Arg Asp Ile Asp Phe Leu Ala Glu Lys Asp His Thr Thr Leu Leu Ser  
 165 170 175  
 Glu Val Met Thr Pro Arg Ile Glu Leu Val Val Ala Pro Ala Gly Val  
 180 185 190  
 Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Ser Lys Lys Gly Lys  
 195 200 205  
 Leu Pro Ile Val Asn Asp Cys Asp Glu Leu Val Ala Ile Ile Ala Arg  
 210 215 220  
 Thr Asp Leu Lys Lys Asn Arg Asp Tyr Pro Leu Ala Ser Lys Asp Ser  
 225 230 235 240  
 Gln Lys Gln Leu Leu Cys Gly Ala Ala Val Gly Thr Arg Glu Asp Asp  
 245 250 255  
 Lys Tyr Arg Leu Asp Leu Leu Thr Gln Ala Gly Val Asp Val Ile Val  
 260 265 270  
 Leu Asp Ser Ser Gln Gly Asn Ser Val Tyr Gln Ile Ala Met Val His  
 275 280 285  
 Tyr Ile Lys Gln Lys Tyr Pro His Leu Gln Val Ile Gly Gly Asn Val  
 290 295 300  
 Val Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Gly  
 305 310 315 320  
 Leu Arg Val Gly Met Gly Cys Gly Ser Ile Cys Ile Thr Gln Glu Val  
 325 330 335  
 Met Ala Cys Gly Arg Pro Gln Gly Thr Ala Val Tyr Lys Val Ala Glu  
 340 345 350  
 Tyr Ala Arg Arg Phe Gly Val Pro Ile Ile Ala Asp Gly Gly Ile Gln  
 355 360 365  
 Thr Val Gly His Val Val Lys Ala Leu Ala Leu Gly Ala Ser Thr Val  
 370 375 380



Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
 20 25 30  
 Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
 35 40 45  
 Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
 50 55 60  
 Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
 65 70 75 80  
 Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
 85 90 95  
 Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Glu Gln  
 100 105 110  
 Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Lys Asp Arg Val Arg  
 115 120 125  
 Asp Val Phe Glu Ala Lys Ala Arg His Gly Phe Cys Gly Ile Pro Ile  
 130 135 140  
 Thr Asp Thr Gly Arg Met Gly Ser Arg Leu Val Gly Ile Ile Ser Ser  
 145 150 155 160  
 Arg Asp Ile Asp Phe Leu Lys Glu Glu Glu His Asp Cys Phe Leu Glu  
 165 170 175  
 Glu Ile Met Thr Lys Arg Glu Asp Leu Val Val Ala Pro Arg Ser Ile  
 180 185 190  
 Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Ser Lys Lys Gly Lys  
 195 200 205  
 Leu Pro Ile Val Asn Glu Asp Asp Glu Leu Val Ala Ile Ile Ala Arg  
 210 215 220  
 Thr Asp Leu Lys Lys Asn Arg Asp Tyr Pro Leu Ala Ser Lys Asp Ala  
 225 230 235 240  
 Lys Lys Gln Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp  
 245 250 255  
 Lys Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val  
 260 265 270





<210> 64  
 <211> 514  
 <212> PRT  
 <213> Homo sapiens

<300>

<301> Dayton, Jennifer S.  
 Lindsten, Tullia  
 Thompson, Craig B.  
 Mitchell, Beverly S.

<302> Effects of Human T Lymphocyte Activation on Inosine  
 Monophosphate Dehydrogenase Expression

<303> J. Immunol.

<304> 152

<306> 984-991

<307> 1994

<400> 64

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Gly Tyr Val Pro Glu Asp  
 1 5 10 15

Gly Leu Thr Ala His Glu Leu Phe Ala Ser Ala Asp Gly Leu Thr Tyr  
 20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Phe Ile Asp Phe Ile Ala Asp Glu  
 35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Arg Lys Ile Thr Leu Lys Thr Pro  
 50 55 60

Leu Ile Ser Ser Pro Met Asp Thr Val Thr Glu Ala Asp Met Ala Ile  
 65 70 75 80

Ala Met Ala Leu Met Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
 85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Phe Glu Gln  
 100 105 110

Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Ser His Thr Val Gly  
 115 120 125

Asp Val Leu Glu Ala Lys Met Arg His Gly Phe Ser Gly Ile Pro Ile  
 130 135 140

Thr Glu Thr Gly Thr Met Gly Ser Lys Leu Val Gly Ile Val Thr Ser  
 145 150 155 160

Arg Asp Ile Asp Phe Leu Ala Glu Lys Asp His Thr Thr Leu Leu Ser  
165 170 175

Glu Val Met Thr Pro Arg Ile Glu Leu Val Val Ala Pro Ala Gly Val  
180 185 190

Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Thr Lys Lys Gly Lys  
195 200 205

Leu Pro Ile Val Asn Asp Cys Asp Glu Leu Val Ala Ile Ile Ala Arg  
210 215 220

Thr Asp Leu Lys Lys Asn Arg Asp Tyr Pro Leu Ala Ser Lys Asp Ser  
225 230 235 240

Gln Lys Gln Leu Leu Cys Gly Ala Ala Val Gly Thr Arg Glu Asp Asp  
245 250 255

Lys Tyr Arg Leu Asp Leu Leu Thr Gln Ala Gly Val Asp Val Ile Val  
260 265 270

Phe His Ser Ser Gln Gly Asn Ser Val Tyr Gln Ile Ala Met Val His  
275 280 285

Tyr Ile Lys Gln Lys Tyr Pro His Leu Gln Val Ile Gly Gly Asn Val  
290 295 300

Val Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Gly  
305 310 315 320

Leu Arg Val Gly Met Gly Cys Gly Ser Ile Cys Ile Thr Gln Glu Val  
325 330 335

Met Ala Cys Gly Arg Pro Gln Gly Thr Ala Val Tyr Lys Val Ala Glu  
340 345 350

Tyr Ala Arg Arg Phe Gly Val Pro Ile Ile Ala Asp Gly Gly Ile Gln  
355 360 365

Thr Val Gly His Val Val Lys Ala Leu Ala Leu Gly Ala Ser Thr Val  
370 375 380

Met Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr  
385 390 395 400

Phe Phe Ser Asp Gly Val Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser  
405 410 415





305		310		315		320
Leu Arg Val Gly Met Gly Cys Gly Ser Ile Cys Ile Thr Gln Glu Val						
	325		330		335	
Met Ala Cys Gly Arg Pro Gln Gly Thr Ala Val Tyr Lys Val Ala Glu						
	340		345		350	
Tyr Ala Arg Arg Phe Gly Val Pro Ile Ile Ala Asp Gly Gly Ile Gln						
	355		360		365	
Thr Val Gly His Val Val Lys Ala Leu Ala Leu Gly Ala Ser Thr Val						
	370		375		380	
Met Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr						
385		390		395		400
Phe Phe Ser Asp Gly Val Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser						
	405		410		415	
Leu Asp Pro Met Glu Lys Ser Ser Ser Ser Gln Lys Arg Tyr Phe Ser						
	420		425		430	
Glu Gly Asp Lys Val Lys Ile Ala Gln Gly Val Ser Gly Ser Ile Gln						
	435		440		445	
Asp Lys Gly Ser Ile Gln Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile						
	450		455		460	
Gln His Gly Cys Gln Asp Ile Gly Ala Arg Ser Leu Ser Val Leu Arg						
465		470		475		480
Ser Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Met Ser						
	485		490		495	
Pro Gln Ile Glu Gly Gly Val His Gly Leu His Ser Tyr Glu Lys Arg						
	500		505		510	
Leu Tyr						